**SECTION 32 92 00**

**PLANTS**

**Based On DFD Master Specification Dated 01/06/2023**

This section has been written to cover typical situations that contractors will encounter. The Division of Facilities Development expects changes to this document to account for project specific conditions and design requirements. Use “Track Changes” when making modifications for Preliminary Design review. Text in red should be customized by the A/E.

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**PART 1 - GENERAL**

**SCOPE**

The work under this section shall consist of providing all work, materials, labor, equipment, and supervision necessary to complete planting of trees, shrubs, ground covers, perennials, annuals, and bulbs, and required maintenance activities of pruning, weeding, and watering.

**RELATED WORK**

Applicable provisions of Division 1 govern work under this Section.

Section 31 25 00 – Erosion Control

Section 32 91 13 - Soil Preparation

Section 32 92 18 – Seeding

Section 32 92 23 - Sodding

Section 00 00 00 – (Section Title)

**REFERENCE STANDARDS**

ANSI Z60.1 American Standards for Nursery Stock

ANSI A300 American National Standard for Tree Care Operations - Tree, Shrub and Other Woody Plant Maintenance-Standard Practices

WisDNR S100 Compost Specification

**SUBMITTALS**

Plant Installer Qualifications

Provide copies of all quality assurance test reports:

Soil-Testing: For native topsoil, stockpiled/stored topsoil, and imported topsoil

Topsoil Description: Contractor to provide a written description and quantity of topsoil required; as native or imported, or a breakdown of each, prior to performing landscape work on the site.

Provide product data, including applicable analytical data, for required topsoil amendments including:

Organic Compost

Fertilizer

Provide product data and samples for the following:

***List applicable products which require submittals.***

Plant Sources

Plant Pre-Delivery Inspection Request

Request for Plant Substitution

Planting Schedule

Plant Maintenance Log

**QUALITY ASSURANCE**

**PLANT INSTALLER QUALIFICATIONS**

Contractor shall submit qualifications for the landscape installer to the DFD Construction Representative at least (30) thirty days prior to beginning planting operations for approval to perform planting work. Provide a list of similar projects references (minimum five projects) demonstrating installer’s experience and expertise. Include project names, description of the work performed, photographs, addresses, completion date, and project owner contact information for each project reference.

***If the A/E is including Section 32 91 13 – Soil Preparation, the following soil testing section should be deleted, and replaced with:***

Refer to Section 32 91 13 Soil Preparation for topsoil testing requirements and quality assurance procedures related to topsoil sampling, testing and amendment.

**SOIL TESTING**

The Contractor shall retain the services of an independent soil-testing laboratory to conduct testing and analysis of existing, salvaged, and imported topsoil. The selection of the soil-testing laboratory shall be subject to approval by the DFD Construction Representative and Architect/Engineer.

Soil-Testing Laboratory Qualifications: An independent laboratory, recognized by the State Department of Agriculture, with the experience and capability to conduct the testing indicated, and that specializes in types of tests to be performed.

The soil-testing laboratory shall oversee soil sampling; with depth, location, and number of samples to be approved by the Architect/Engineer. A minimum of three representative samples shall be taken, per-acre. Samples shall be taken from varied locations to test topsoil for all landscape planting types proposed in the Contract Documents.

The Contractor shall be responsible for scheduling soil tests and shall take into account the time period needed by the soil testing laboratory to conduct tests, to process the samples, and to publish the results and recommendations, and the time needed by the Architect/Engineer to approve submittals and amendments recommended. This is typically at least a two-month process. Contractor is responsible for coordinating all testing and reporting tasks without adversely affecting the project schedule.

Contractor is responsible for paying for all costs related to testing of soil samples.

Soil Analysis: For each un-amended topsoil sample, submit for approval by the DFD Construction Representative and Architect/Engineer a soil analysis and a written report by a qualified soil-testing laboratory, stating existing percentages of organic matter; gradation of sand, silt, and clay content; cation exchange capacity; sodium absorption ratio; deleterious material; pH; and mineral and plant-nutrient content of the soil.

Topsoil testing methods shall comply with ASTM D5268, Standard Specification for Topsoil Used for Landscaping Purposes.

Report suitability of tested soil to support turf and plant growth.

Based on the test results, provide written recommendations for soil treatments and amendments to be incorporated to support turf and plant growth. State recommendations in weight per 1000 sq. ft. or volume per cu. yd. for nitrogen, phosphorus, and potash nutrients; and soil amendments to be added to topsoil.

Report presence of harmful salts, minerals, or heavy metals, including aluminum, arsenic, barium, cadmium, chromium, cobalt, lead, lithium, and vanadium. If such problem materials are present, provide recommendations for corrective action.

The DFDM Construction Representative and Architect/Engineer reserve the right to reject improperly amended native topsoil or imported topsoil that does not meet the quality assurance specifications. If rejected, Contractor is responsible for costs of replacement, and/or amendment, and re-testing of topsoil to provide topsoil that will support turf and plant growth.

**PLANT SOURCES AND INSPECTIONS**

Plant Sources: Contractor shall submit a list of sources for all plant materials to the DFD Construction Representative and Architect/Engineer for approval. Include nursey name, location, contact information, and a list of specific plants and quantities obtained from each nursery. Include any requests for plant substitutions with the plant source submittal. See Plant Substitutions for additional requirements.

Plants are to be inspected by the Architect/Engineer upon delivery to the project site, and the DFD Construction Representative may reject any plants not meeting the Plant Material standards listed below, or that have been damaged in transit.

A representative of the Contractor shall be present at all inspections by the DFD Construction Representative and Architect/Engineer.

**PLANT SUBSTITUTIONS**

The substitution of plant materials is not permitted unless authorized in writing by the DFD Construction Representative and Architect/Engineer. If written proof is submitted by the Contractor that a plant of specified species, variety or size is unavailable, consideration will be given towards the nearest available size or variety, or towards an alternate species selection, with a corresponding adjustment of the contract price.

Plant Non-Availability: In order to request a substitution of plant material the contractor must submit in writing a request for plant substitution including a list of three nurseries which indicates that they could not supply either the specific plant species and / or at the specified size. The contractor shall suggest a substitution for a different size of the specified plant or a different species, including its size and root condition. Requests for substitution will be reviewed and a written response provided by the Architect/Engineer. The contractor shall not proceed with ordering or installing any requested substitutions until receipt of written approval is received.

Larger plants than those specified can be used upon approval of the DFD Construction Representative and Architect/Engineer. The use of larger plants shall not increase the contract price. The root ball, root spread and container size of the larger specimen shall be proportionally increased, relative to the specified size. Coordinate ordering of plant material to ensure that plants are fully rooted and of the species specified by the time of plant installation.

**PLANT MATERIAL**

All plant material shall conform to the *American Standards for Nursery Stock*.

All plant material shall be true to the species and variety/hybrid/cultivar specified, and nursery-grown in accordance with good horticultural practices, and under climatic conditions similar to those of the project site location. Nursery dug plant material shall be dug at the correct time of year and properly prepared for planting.

Trees and shrubs shall be high quality and superior in form and symmetry. Trees with multiple leaders, unless specified otherwise, and shrubs with damaged or cut main stem(s), will be rejected.

Trees and shrubs with a damaged, cut or crooked leader, abrasion of bark, sunscald, frost crack, disfiguring knots, insects (including eggs and larvae) or insect damage, cankers/cankerous lesions or fungal mats, mold, prematurely opened buds, or cuts of limbs over 3/4” diameter that are not completely callused will be rejected.

Trees and shrubs shall have healthy, well-developed root systems, and be free from physical damage or other hindrances to healthy growth.

Balled and burlapped plants shall be dug with solid balls of a diameter not less than that recommended by the *American Standards for Nursery Stock*, and of sufficient depth to include both fibrous and feeding roots. Balls shall be securely wrapped with biodegradable burlap, and tightly bound with biodegradable rope or twine. No plant shall be bound with rope or wire in such manner as to damage bark or break branches. The root flare should be within the top 2” of the soil ball.

Balled and burlapped plants will not be accepted if the ball is dry, cracked, or broken before or during planting.

Containerized plants are to be well-established within the container, with a root system sufficiently developed to retain its shape and hold together when removed from the container. Soil within the container should be held together by the roots, in form and whole. Plants shall not be pot-bound, nor have kinked, circling, or bent roots.

Bare root plants are to have a healthy, well-branched, and adequately spreading root system characteristic of the species.

Plants shall conform to the sizes specified on the drawings. Plants meeting a specified size but lacking a balance between height and spread characteristic of the species will be rejected. No plant shall be less than the minimum size specified.

Measure plant with branches, canes, and trunks in their normal position. Measure main body of plant for height and spread. Take caliper measurements 6 inches above the root flare for trees up to 4-inch caliper size, and 12 inches above the root flare for larger sizes.

Perennials shall be measured by pot size, not by top growth.

All other measurements, such as number of canes, ball sizes, and quality designations, shall conform to *American Standards for Nursery Stock*.

**DELIVERY, STORAGE, AND HANDLING**

The Contractor is to arrange for the acceptance and unloading of plants at the project site.

All plants are to be labeled by plant name and size. Labels shall be attached securely to all plants, bundles, and containers of plant materials when delivered. Labels shall be durable and legible, with information given in weather-resistant ink or embossed process lettering.

All plant materials, shipments and deliveries shall comply with current state and federal laws and regulations governing the inspection, shipping, selling and handling of plant stock. If required by law or regulation, a certificate of inspection, or a copy thereof, for injurious insects, plant diseases, and other plant pests shall accompany each shipment or delivery of plant material. The certificate shall bear the names and addresses of the sources of the plant stock.

During transport, no plant shall be bound with rope or wire in a manner that damages trunks or breaks branches. Plants shall also not be dragged, lifted or pulled by the trunk, branches or foliage in a damaging way. No plant shall be thrown off of a truck or loader to the ground.

Prior to installation, all plants must be protected from sun and drying winds.

Containerized or balled and burlapped plants not being installed immediately must be kept in a shaded area, with root balls well-covered with wood chips, soil, or other approved material, and kept well-watered. Install all plants within three (3) days of delivery.

Cover roots of bare root plants with a moist tarp, burlap, sphagnum moss, or mulch while being transported to, or while being held at the project site. Soak the bare roots overnight in water before planting. Just before planting, extend the roots carefully into a natural position, free of bunching, kinking or circling. Cut back all broken or damaged roots to a point clean and free of rot. No additional root pruning is allowed. Carefully work backfill mix among the roots while simultaneously watering.

Fertilizer shall be delivered to the site in original, sealed containers, and stored in a waterproof space. Containers shall bear the manufacturer’s name, analysis, trademark and guarantee as per standards of the Wisconsin Department of Agriculture.

**PLANTING SCHEDULE**

Plant during one of the following recommended periods. Coordinate planting periods with on-going maintenance requirements throughout planting operations until date of planting acceptance.

Spring Planting: Mid-May to Mid-July

Fall Planting: September to Mid-October

Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit. Contractor may plant outside of the recommended periods with written approval from the DFDM Construction Representative and Architect/Engineer.

Coordination with Lawns: Plant trees and shrubs after finish grades are established and before installing lawns, unless otherwise acceptable to Architect/Engineer. When planting trees and shrubs after lawns, protect lawn areas and promptly repair damage caused by planting operations.

**JOB CONDITIONS**

Protect all plants and lawn areas from damage at all times. Plants or lawn areas damaged during construction shall be replaced, repaired, or treated as required to conform with specifications for fresh stock.

During construction, protect all structures, utilities, sidewalks, pavements, and other facilities and existing and newly installed vegetated areas from damage at all times. All vegetation damaged during construction shall be treated, repaired or replaced with new material as necessary, to restore to the original condition.

Work areas shall be kept clean and orderly during the installation period. Under no condition shall debris from planting activities result in a safety hazard on-site or to adjacent off-site property.

***Verify warranty requirements below based on project specific conditions.***

**WARRANTY**

All plants shall be warranted by the Contractor to be in healthy and flourishing condition for a period of one calendar year after the date of acceptance for all plantings.  This assumes the Owner performs required maintenance (i.e., regular watering) after the Contractor’s maintenance period is completed. Contractor shall inform Owner when required maintenance has concluded.

The warranty shall not cover damage from vandalism, animals, freezing rains, or winds of sixty (60) miles per hour or greater.

At any time during the warranty period, the Contractor shall remove or replace, without cost to the Owner, all plants that are dead or that are not in a healthy and flourishing condition as determined by the DFD Construction Representative and Architect/Engineer. Plants that are more than twenty-five (25) percent dead or in an unhealthy condition at end of warranty period shall be replaced.

Contractor shall replace dead or unhealthy plants immediately upon notice from the DFDM Construction Representative. Remove dead plants, and replace with healthy stock, unless required to plant in the succeeding planting season.

Plants that are replaced shall be subject to the same specified requirements of the contract. In the event that a plant that has been replaced is not acceptable during, or at the end, of the extended one-year warranty period, Owner may choose between subsequent replacement or credit for that item.

**PART 2 - PRODUCTS**

**PLANT MATERIALS**

A complete list of plant materials that describes plant quantities, sizes, and root conditions is included in the drawings. If discrepancies occur between the plant list, and the drawings, the drawings will take precedent in terms of determination of quantities.

Planting plans are diagrammatic. Contractor shall provide sufficient quantities of plant materials to satisfy the design intent of the drawings and shall verify quantities needed prior to bidding or placing orders for plant materials.

# Water

Water to be free of wastewater effluent or other hazardous chemicals.

**TOPSOIL**

Naturally fertile, agricultural soil, classified as sandy loam to silty loam, capable of supporting turf and plant growth; of uniform composition throughout, without admixtures of subsoil, free of clay lumps, stones larger than 1” diameter [¾” diameter for athletic field uses], roots, trash and debris of any kind.

Soil-testing results shall indicate that topsoil falls within the following acceptable ranges, or can be amended to conform to the following requirements:

pH between 5.5 -7.0

USDA classification loam, sandy loam, clay loam

Phosphorous (P) between 6-10 ppm

Potassium (K) between 51-100 ppm

Organic Matter between 5-8%

C:N Ratio between 12:1 to 15:1

Soluble Salts in the range of 0-2 dS/m

Moisture Capacity of greater than 15%

Heavy Metals acceptable ranges are as follows:

Cd 0.01-3.0 ppm

Co 1.0-40.0 ppm

Cr 5.0-1000.0 ppm

Cu 2.0-100.0 ppm

Fe 10000-50000 ppm

Mn 100-4000 ppm

Mo 0.5-40.0 ppm

Ni 1.0-200.0 ppm

Pb 2.0-200.0 ppm

Zn 10-300 ppm

Li 1.2 – 90.0 ppm

**ORGANIC COMPOST**

Well-composted, stable, and weed-free organic matter meeting the requirements of WisDNR S100 Compost Specification.

**PLANTING MIXTURE**

A ratio of uniformly mixed organic compost to approved topsoil by volume: [1:4] [1:3]. All mixing shall be done by mechanical means subject to the approval of the Architect/Engineer.

**ORGANIC MULCH**

[Shredded Hardwood Bark] [Wood Chips] [Pine Needles] [Cocoa Bean Hulls] free of material detrimental to healthy plant growth. Organic mulch pieces shall be 1/8” minimum thickness, with at least fifty (50) percent having an area of not less than 1 sq. inch, and no piece having an area of more than 6 sq. inches. Only natural undyed and untreated mulch will be accepted.

**STONE MULCH**

[Washed Stone] [Crushed Limestone] [Decomposed Granite] [Pea Gravel] ranging in size from [1/8” – 1/4”] [1/2” – 1”] [1” - 2”]in diameter, clean and free of organic matter. Color: [range of xxxx to xxxx]. Provide sample to Architect/Engineer for approval.

**WEED CONTROL FABRIC**

Spun-bonded, rot-resistant polypropylene fabric, water and air permeable, and unaffected by freezing and thawing, or by deterioration from fertilizers or pesticides.

***Delete the following staking, wrapping, and anti-desiccant products, unless A/E determines these are necessary project requirements***

**STAKES AND SUPPORT TIES**

Stakes: 6-8-foot-long sections of un-flanged metal, or 2-inch x 2-inch hardwood.

Flexible Support Ties: 2 inch or wider bands of polypropylene, or elasticized or webbed strapping.

**WRAPPING MATERIAL**

Biodegradable geotextile (fabric) trunk wrap, or waterproofed crepe wrapping paper, secured with 1-inch-wide masking tape.

**ANTI-DESICCANT**

If required as protection for leaf surfaces, anti-desiccant shall be permeable to permit transpiration, and mixed and applied in accordance with manufacturer’s specifications.

**LANDSCAPE EDGING**

[Steel Edging: Standard commercial-steel edging, rolled edge, fabricated in sections of standard lengths, with loops stamped from or welded to face of sections to receive stakes]

[Aluminum Edging: Standard-profile extruded-aluminum edging, ASTM B 221 (ASTM B 221M), Alloy 6063-T6, fabricated in standard lengths with interlocking sections with loops stamped from face of sections to receive stakes].

Edging Size: [3/16 inch wide by 4 inches deep] [1/4 inch wide by 5 inches deep] [1/4 inch wide by 4 inches deep] [1/8 inch wide by 4 inches deep] [1/8 inch wide by 6 inches deep] [0.1 inch wide by 4 inches deep].

Shovel-cut edge: see drawings.

***Delete the two following tree grate products, unless A/E or Owner determines these are necessary project requirements***

**TREE GRATES AND FRAMES**

ASTM A 48/A 48M, Class 35 (Class 250) or better, gray-iron castings and ASTM A 36/A 36M steel-angle frames of shape, pattern, and size indicated; steel frames hot-dip galvanized.

Shape and Size: [As indicated] [Round, 36 inches in diameter] [Round, 72 inches in diameter] [48 inches square] [60 inches square] [Rectangular, 36 by 60 inches] [Rectangular, 48 by 72 inches]

Finish: [As fabricated] [Powder-coat finish]

Color: [black] [dark brown] [dark green] [dark gray]

**HERBICIDE**

Pre-Emergent Herbicide (Selective and Non-Selective): Effective for controlling the germination or growth of weeds within planted areas at the soil level directly below the mulch layer.

Post-Emergent Herbicide (Selective and Non-Selective): Effective for controlling weed growth that has already germinated.

**FERTILIZER**

Mycorrhizal Fungi: Dry, granular inoculant containing at least 5300 spores per lb. of vesicular-arbuscular mycorrhizal fungi and 95 million spores per lb. of ectomycorrhizal fungi, with a maximum of 5.5 percent inert material

Fertilizer: Granular, non-burning product composed of not less than fifty (50) percent slow-acting, guaranteed analysis fertilizer. Fertilizer shall be specified in the contract documents as to composition but is subject to revision to suit project site conditions.

Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium.

Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing laboratory.

**PART 3 - EXECUTION**

**SITE PREPARATION**

During construction, protect all structures, utilities, sidewalks, pavements, and other facilities and existing and newly installed vegetated areas from damage at all times.

Delay grading and spreading topsoil if unfavorable weather conditions may result in washouts or loss of material.

Contractor shall locate all utilities, including irrigation systems, prior to excavation. Contact Digger’s Hotline to coordinate locating of underground utilities prior to excavation or soil preparation.

***A/E delete the following section if using Section 32 91 12: Soil Preparation***

**SOIL PREPARATION**

Newly graded subgrades: Loosen subgrade to a minimum depth of 4 inches. Remove stones larger than 1 inch in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.

Existing vegetated areas: If planting occurs in areas unaltered or undisturbed by excavating, grading, or surface soil stripping operations, prepare surface soil as follows:

Remove existing vegetation. Do not mix vegetation into surface soil. Loosen existing topsoil to a minimum depth of 4 inches. Remove stones larger than 1 inch in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.

Rough grade areas to within 1 inch of subgrade elevations. Areas shall be graded to a smooth uniform surface plane with loose, uniformly fine texture. Areas shall be restored if eroded or otherwise disturbed after rough grading is complete.

**PLACING PLANTING MIXTURE**

The following applies to all perennial, annual and bulb planting areas.

Remove existing soil as needed to accommodate proposed planting mixture.

Provide [8 to x inches] [depth specified on drawings] of planting mixture in perennial, annual and bulb planting areas.

Do not place planting mixture on top of saturated or frozen subgrade soil.

**PLANTING TREES AND SHRUBS**

***A/E to edit or delete***

Upon direction from the Architect/Engineer, Contractor to stake locations and layouts for bed edges and/or plants for approval by Architect/Engineer and DFDM Construction Representative prior to excavation or soil preparation. Contractor to provide [x days] notice prior to approval.

The bottoms of planting pits for individual trees and shrubs shall be approximately 3 times the diameter of the root ball.

The bottoms of planting pits for shrub mass-planting areas shall extend a minimum of 12” beyond the combined root ball area.

Planting pits for bare root plants shall be sized to match the diameter of the fully extended roots system and dug just deep enough to locate the uppermost roots closely below finish grade.

Scarify or loosen the sides of plant pits smeared or smoothed during excavation.

Set root ball on firm undisturbed soil, at a minimum excavation depth as required keep root ball flare 1” above the finished grade of planting soil.

Remove all wrappings, wire baskets, and non-biodegradable burlap from root balls prior to planting.

Remove containerized plant root balls from containers. Carefully tease individual roots free from the sides of rootballs by hand, or work them free by mechanical means, or if necessary, slash with a sharp knife to free-up pot-bound roots.

Trees and shrubs are to be carried and set in pits by the root ball, and not lifted or handled by using plant branches, stems, or trunks.

Set each tree and shrub straight and upright, in the center of the planting hole, with the most desirable face towards the most prominent view.

Backfill pits with [native excavated soil] [planting mixture] as shown on the drawings. Frozen soil shall not be used for backfilling.

When pit is approximately two-thirds backfilled, tamp down and water to eliminate air pockets. After watering add remainder of the soil to the top of pit. Firmly tamp without over-compacting. Form a 2-3” Ht. saucer around outer rim of pit prior to mulching as shown on the drawings.

Finish-grade planting areas to the required elevations after plants have fully settled. Root flares shall be visible at the top of each root ball.

Remove all twine, rope, and plant labels on branches, stems, and trunks after planting.

Thoroughly water plants immediately after planting and before mulching, primarily within and filling the saucer.

Prune any dead or broken branches.

Adequately barricade with proper warning devices any planting pit left open when planting work is not in progress, and that poses a hazard to pedestrians or vehicles.

**PLANTING PERENNIALS, ANNUALS AND BULBS**

***A/E to edit or delete***

Upon direction from the Architect/Engineer, Contractor to stake locations for perennial bed groupings for approval by Architect/Engineer and DFD Construction Representative prior to planting. Contractor to provide [x days] notice prior to approval.

Planting beds shall be pitched to drain away from buildings.

Herbaceous plants should not be installed within 18 inches from the trunks of trees or shrubs, or within 8 inches of the edge of the bed.

For small quantities of bulbs, or in sections where bulbs are mixed-in with other plantings, drive bulb planting holes through mulch using a bulb planter, hand trowel, or power auger. Plant each bulb such that its basal plate faces downward, then cover with soil and mulch.

For larger quantities of bulbs, excavate designated areas to specified planting depth as shown on the drawings, place bulbs such that their basal plates face downward, then cover with soil and mulch.

Thoroughly water plants immediately after planting and before mulching.

***If the A/E is including Section 32 91 13.50 – Stormwater Bioinfiltration, the following soil testing section should be deleted, and replaced with:***

Refer to Section 32 91 13.50 – Stormwater Bioinfiltration; for bioinfiltration requirements

**PLANTING PERENNIAL PLUGS FOR BIOINFILTRATION AREAS**

***A/E to edit or delete***

[Upon direction from the Architect/Engineer, Contractor to stake general layout of each perennial plug plant bed for approval by Architect/Engineer and DFD Construction Representative prior to planting. Contractor to provide [x days] notice prior to approval.]

Perennial plug stock shall not be shipped until the soil preparation has been completed. On-site storage time for plugs shall not exceed 24 hours. Notify Architect/Engineer of the expected date of delivery at least 7 days prior.

If weather conditions delay planting, protect and store plugs to ensure viability.

All plants shall be healthy and free from weeds, fungal and bacterial discoloration, deformities, and rotting.

Plugs shall be individually labeled for inspection at the job site or labeled in bundles or trays of like species.

Prior to planting, biodegradable plant containers shall be split and non-biodegradable containers removed.

If erosion control mats are present, perennial plugs shall be installed through the mats. Cut an ‘X’ shaped opening into the mat, pull back corners and excavate media 2 times the width of the plug and the same depth of the plug. Install and back fill with the same planting media. Fold mat back into place below plant foliage.

Thoroughly water plants immediately after planting and at the end of each day during installation.

**PLACING WEED FABRIC AND MULCH**

Place weed fabric as shown on the drawings [per manufacturer’s instructions].

All plant beds shall be mulched with a [3”] [4”] layer of [organic] mulch immediately after planting. Pull back mulch 3” from plant trunks or stems, leaving root flare exposed.

Provide a [4’] [5’] diameter organic mulch ring around the base of trees planted within lawn areas. Apply approved pre-emergent herbicide per manufacturer’s instructions to soil surface prior to mulch installation.

Stone mulch and mowing strips: After edging is installed, lay weed control fabric over finished grade prior to mulching per manufacturer’s recommendations. Secure to slopes with “T”-shaped pin anchors. Spread stone mulch uniformly across the entire planting bed to a depth of [3”] [4”].

Top of mulch surface shall be a minimum 2” below the building flashing and/or masonry weeps and shall be pitched away from the building to provide positive drainage.

**EDGING INSTALLATION**

Landscape Edging: Install per manufacturer's instructions. Anchor with stakes spaced approximately [30 inches] [36 inches] [48 inches] apart, driven below top elevation of edging.

Shovel-Cut or Mechanical-Cut Edging: Separate mulched areas from turf areas with a [30-degrees from vertical] [45-degree], 4-inch deep, shovel-cut or mechanical cut edge as shown on drawings. Top of mulch shall be slightly below finish grade of turf.

***Delete the following wrapping and staking sections, unless A/E or Owner determines these are necessary project requirements***

**TREE WRAPPING**

Secure tree wrap at a minimum of 5 locations, including the top, middle and bottom of the trunk. Cover the trunk’s entire surface in a spiral manner, starting at the tree’s base and extending to just below the height of the lowest main branches. Overlap material at ½”-1”. Install tree wrap in September through November. Owner will be responsible for removing the tree wrap the following spring.

**TREE STAKING**

Space stakes evenly outside of, and driven clear of, the root ball. Stakes are to be driven at an angle then drawn to vertical.

Ties made of approved material shall be directly attached to the stakes. Attach ties so as to allow for 1-3” of sway in the trunk. For drooping stems, ties shall be placed at the point on the stem at which the top can then stand on its own.

Staking shall conform to any additional directions found in the drawings. Owner will be responsible for removing the stakes after roots are established.

**PLANT ACCEPTANCE**

The DFD Construction Representative and the Architect/Engineer shall perform inspections with the Contractor after the conclusion of the installation operations to verify that plantings have been satisfactorily installed.

Request for Inspection: Contractor shall submit a request for inspection to the DFD Construction Representative and Architect/Engineer. The request shall be received at least 7 (seven) days before the anticipated date of inspection.

Plantings may be accepted in stages when the Contractor and Owner deem that practice to be in their mutual interest. Approval must be given in writing by Owner to the Contractor verifying that work may be completed in stages.

Acceptance of plant installations shall not waive any provisions of the Warranty.

**CLEANING AND REPAIR**

Waste and excess material from the plant installation shall be promptly removed. Adjacent paved areas are to be cleaned, and any damage to existing adjacent landscape areas shall be repaired.

**PRUNING**

Prune in accordance with current *American National Standards (ANSI) for Tree Care Operations*.Perform all pruning work in a manner consistent with the landscape design intent. Plants overhanging and blocking pedestrian and/or vehicular paths shall be pruned as needed to allow the desired clearance.

Except in the cases of hedges, or to conform to some design intent, all pruning of ornamental trees, shrubs and ground covers should aim to retain their natural shapes. With multiple leader plants, preserve the leader that best promote the plant’s symmetry. Prune branches of deciduous stock to improve the branch structure of the plant.

Trim Oaks only during the low Oak wilt risk period between November 1 and March 15.

Trim Honeylocusts, and Elms while dormant to reduce disease risk. Other trees may be trimmed at other times of the year, except during leaf-out, or at the time of leaf drop. If Oaks, Elms or Honeylocusts are specified for pruning during the non-dormant period, the Contractor must completely seal all pruning wounds immediately after each cut with a wound dressing.

Plants that flower before late spring should be pruned immediately after flowering. Those that flower in summer or fall should be pruned in winter or spring before new growth emerges.

Prune evergreens only to remove dead, broken or damaged branches. Prune yews, junipers, hemlocks and arborvitae after new growth has hardened off in late summer.

Where necessary, repairs to damaged wood shall be performed under the direction of a certified arborist.

Prune using scissors-style cutting devices, and not anvil-style hand pruners, pole pruners or loppers.

***Verify maintenance requirements based on project specific conditions***

**PLANT MAINTENANCE**

Contractor to provide regular watering, weeding, plant re-setting and straightening, pest management, and trash removal services for all new planting areas for a period of 60 (sixty) days after Plant Acceptance, at which time maintenance duties will be taken over by the Owner.

Begin maintenance for new planting areas as planting operations progress in stages, in addition to the above-mentioned maintenance period.

Contractor shall provide a temporary irrigation system or import water via watering truck as often as necessary to ensure new plantings remain healthy.

Contractor shall remove all weeds by the roots on a bi-weekly basis. Use of herbicide for weed control shall be requested by Contractor and allowed only with approval by Owner in writing.

Chemical applications of fertilizer or herbicides are to be performed in accordance with current federal, state and local laws, through EPA-registered materials and application techniques, and performed under the supervision of a licensed certified applicator.

Plant Maintenance Log: Contractor shall submit a written record to the DFDM Construction Representative, and the Architect/Engineer which documents regular maintenance visits and actions performed. Failure of Contractor to provide documentation of regular required landscape maintenance duties that result in unsuccessful plant establishment, will require plant replacement at full cost to Contractor.

Contractor shall inform Owner when required maintenance period has concluded.

END OF SECTION